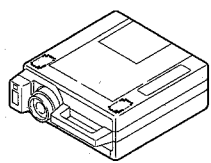
VPL-S500U/S500E/S500M

PK-PJ500/PSS-500/RM-PJ21/RM-PJM500

VPL-S500U
US Model
Canadian Model

VPL-S500E/S500M
AEP Model



PD CHASSIS

SPECFICATIONS

VPL-S500U/S500E/S500M

Optical characteristics

Projection system	3 LCD panels, 1 lens, projection system
LCD panel	1.3-inch TFT LCD panel, 1, 557, 504 pixels (519, 168 pixels × 3)
Lens	1.5 times zoom lens f 50 to 75 mm/F 2.5 to 3.1
Lamp	250 W Metal halide lamp
Projection picture size	Range: 40 to 300 inches (diagonal measure)
Light output	ANSI lumen[1] 450 lm

Throwing distance 40-inch: 1470 to 2190 mm (57 7/8 to 86 1/4 inches)
80-inch: 3040 to 4450 mm (119 3/4 to 175 3/4 inches)
100-inch: 3820 to 5580 mm (150 1/2 to 219 3/4 inches)
120-inch: 4600 to 6720 mm (181 1/8 to 264 5/8 inches)
200-inch: 7730 to 11250 mm (304 3/8 to 443 inches)
300-inch: 11640 to 16910 mm (458 3/8 to 665 3/4 inches)
For (832 × 624)-dot display

1) ANSI lumen is a measuring method of American National Standard IT 7.228.

-Continued on next page-

LCD DATA PROJECTOR

SONY

Electrical characteristics

Color system: NTSC3.58/PAL/SECAM/NTSC4.43/PAL-M system, switched automatically/manually

Resolution: 600 horizontal TV lines (Video input)
832 × 624 pixels (RGB input)

Acceptable computer signals
15k RGB/component (NTSC)
fH:15.734 kHz, fV:59.94 Hz
15k RGB/component (PAL/SECAM)
fH:15.625 kHz, fV: 50.0 Hz
VGA mode1 (640 × 350 dots)
fH:31.468 kHz, fV:70.086 Hz
VGA mode2
(Text 640 × 400 dots)
fH:31.468 kHz, fV:70.086 Hz
VGA mode3
(Graphics 640 × 480 dots)
fH:31.468 kHz, fV:59.94 Hz
VGA VESA 72 Hz
(640 × 480 dots)
fH:37.86 kHz, fV:72.809 Hz
VGA VESA 75 Hz
(640 × 480 dots)
fH:37.5 kHz, fV:75 Hz
Macintosh 13-inch mode
(640 × 480 dots)
fH:35.0 kHz, fV:66.66 Hz
Macintosh 16-inch mode
(832 × 624 dots)
fH:49.724 kHz, fV:74.55 Hz
S VGA VESA 56 Hz
(800 × 600 dots)
fH:35.156 kHz, fV:56.25 Hz
S VGA VESA 60 Hz
(800 × 600 dots)
fH:37.879 kHz, fV:60.32 Hz
S VGA VESA 72 Hz
(800 × 600 dots)
fH:48.077 kHz, fV:72.188 Hz
S VGA VESA 75 Hz
(800 × 600 dots)
fH:46.875 kHz, fV:75.0 Hz
S VGA VESA 85 Hz
(800 × 600 dots)
fH:53.674 kHz, fV:85.061 Hz
XGA VESA 60 Hz
(1024 × 768 dots)
fH:48.363 kHz, fV:60 Hz[2)]
XGA VESA 70 Hz
(1024 × 768 dots)
fH:56.476 kHz, fV:70.069 Hz[2)]

Horizontal frequency range
RGB:15 kHz (SonG/Composite sync), 24 to 57 kHz

Vertical frequency range
50 to 85 Hz

Speaker: Max. 2 W + 2 W, 7 × 4 cm ($^3/_{32}$ × $^3/_{16}$ inches) stereo

Input/Output

VIDEO IN
VIDEO: BNC-type
Composite video: 1 Vp-p ±2 dB sync negative (75 ohms terminated)
S VIDEO: Y/C mini DIN 4-pin type (male)
Y (luminance): 1 Vp-p ±2 dB sync negative (75 ohms terminated)
C (chrominance):burst 0.286 Vp-p ±2 dB (NTSC) (75 ohms terminated), burst 0.3 Vp-p ±2 dB (PAL) (75 ohms terminated)

AUDIO IN: Phono type:
500 mVrms, stereo, impedance more than 47 kilohms

INPUT A: Analog RGB/component:HD D-sub15-pin (female)
(For details, see "Pin assignment" on page 38 (EN).)
R/R-Y: 0.7 Vp-p ±2 dB positive (75 ohms terminated)
G: 0.7 Vp-p ±2 dB positive (75 ohms terminated)
G with sync/Y: 1 Vp-p ±2 dB sync negative (75 ohms terminated)
B/B-Y: 0.7 Vp-p ±2 dB positive (75 ohms terminated)
SYNC/HD:
Composite sync input: 0.6-8 Vp-p high impedance, positive/negative
Horizontal sync input: 0.6-8 Vp-p high impedance, positive/negative
VD:
Vertical sync input: 0.6-8 Vp-p high impedance, positive/negative
AUDIO IN: Stereo minijack
500 mVrms, impedance more than 47 kilohms

AUDIO OUT (variable out): Phono type
Max. 1 Vrms, when an input signal is 500 mVrms, impedance less than 5 kilohms

CONTROL S IN/PLUG IN POWER: Stereo minijack
5 Vp-p
Plug in power, DC 5 V maximum output 60 mA

2) Compressed XGA signal is reproduced.

Safety regulations	VPL-S500U: UL1950, CSA950, FCC Class B, IC Class B VPL-S500E/S500M: EN60 950 (TÜV), CE, C-Tick

General

Dimensions	368 × 176 × 444 mm (14 1/2 × 7 × 17 15/32 inches) (w/h/d)
Mass	Approx. 10 kg (22 lb 1 oz)
Power requirements	
	VPL-S500U: AC 100 to 120 V/ 220 to 240 V, 50/60 Hz[1]
	VPL-S500E/S500M: AC 220 to 240 V, 50/60 Hz
Power consumption	
	Max. 350 W (Standby mode: 10 W)
Heat dissipation	1194.4 BTU
Operating temperature	
	0°C to 40°C (32°F to 104°F)
Operating humidity	
	35% to 85% (no condensation)
Storage temperature	
	–20°C to 60°C (–4°F to 140°F)
Storage humidity	10% to 90%
Supplied Accessories	
	Remote Commander RM-PJM500 (1) Mouse Receiver RM-PJ21 (Receiver × 1, conversion cable × 2, Operating Instructions × 1) (1) Size AA (R6) batteries (2) HD D-sub 15-pin (male) ⟷ HD D-sub 15-pin (male) cable (1) Signal Adapter (for Macintosh) (1) AC Power cord (1) Lens cap (1) Ventilation cover (1) Operating Instructions (1)

Design and specifications are subject to change without notice.

Optional accessories

Projector Lamp PK-PJ500[2] (for replacement)
Projector Suspension Support PSS-500
Signal Adapter ADP-10 (HD D-sub 15-pin ⟷ D-sub 9-pin (for SIC cable))
Monitor cable
SMF-400 (HD D-sub 15-pin (male) ⟷ 5BNC (male))
SMF-401 (HD D-sub 15-pin (male) ⟷ HD D-sub 15-pin (male))
SIC cable
SIC-20A/20B/21/22
Projection Lens
VPLL-FM30
VPLL-ZM100
Carrying Case VLC-500
Screens
VPS-100FH (100-inch, flat)
VPS-120FH (120-inch, flat)

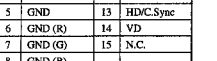
Some of the items may not be available in some areas. For details, please consult your nearest Sony office.

Pin assignment

RGB input connector (HD D-sub 15-pin, female)

1	R/R-Y	9	N.C.
2	G/G-Y	10	GND
3	B/B-Y	11	GND
4	N.C.	12	N.C.
5	GND	13	HD/C.Sync
6	GND (R)	14	VD
7	GND (G)	15	N.C.
8	GND (B)		

S VIDEO connector (4 pin, mini-DIN)



Switch position for adapter

Mode	fH	DIP switch 12345678
VGA/S VGA	31.5 kHz/37.8 kHz	00111001
Macintosh 13"	35.0 kHz	11001001
Macintosh 16"	49.7 kHz	01011001

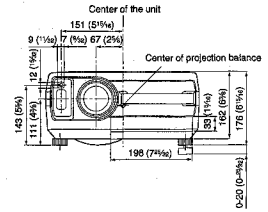
This unit does not correspond to the Macintosh 19" mode.

1) UL approved for 120V operation.

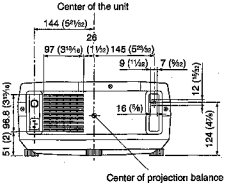
2) PK-PJ500 may not be available in some areas. For details, please consult your nearest Sony office.

Dimensions

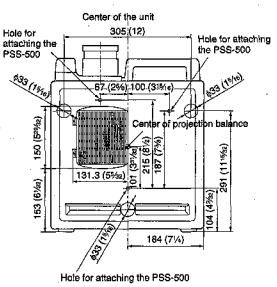
Front



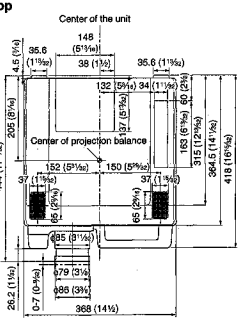
Rear



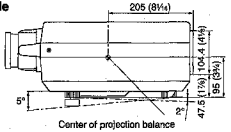
Bottom



Top



Side

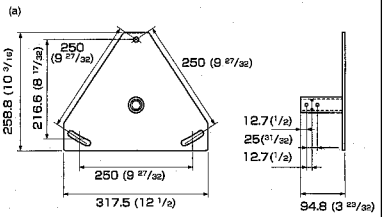


Unit: mm (inches)

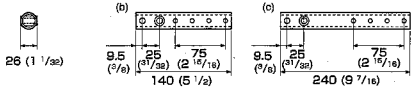
PSS-500

Dimensions

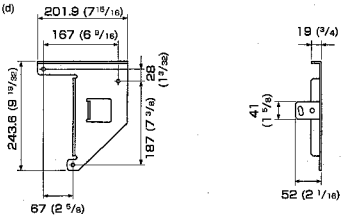
Upper ceiling mount bracket



Adjustment pipes

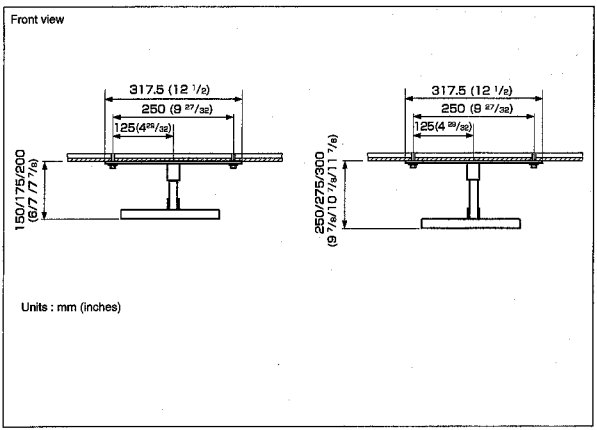


Projector mount bracket



Units : mm (inches)

Dimensions of the assembled bracket



Mass Approx. 3 kg (6 lb 10 oz)

Loading Maximum loading :15 kg (33 lb 1 oz)

Design and specifications are subject to change without notice.

PK-PJ500

Lamp	250 W metal halide DC lamp
Dimensions	Approx. 104 x 115 x 122 mm(w/d/h) (4 1/8 x 4 5/8 x 4 7/8 inches)
Mass	Approx. 390 g (14 oz)

Specifications are subject to change without notice.

RM-PJ21

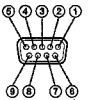
Dimensions 75 × 41.8 × 79.5 mm (3 × 1 11/16 × 3 1/4 inches) (w × h × l)
Mass 190 g (7 oz)
Supplied accessories
Cable for IBM PC/AT compatible computers (250 mm, 9 7/8 inches) (1)
Cable for Macintosh computers (250 mm, 9 7/8 inches) (1)
Operating instructions (1)

Pin assignment C

Design and specifications are subject to change without notice.

C

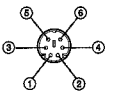
D-sub (9 pin) (Main unit)



1	N.C.	6	N.C.
2	RD	7	RTS
3	TD	8	CTS
4	DTR	9	N.C.
5	GND		

Cable for IBM PC

Mini-DIN 6 pin



1	Data
2	
3	GND
4	+5V
5	Clock
6	

Cable for Macintosh computers

Mini-DIN 4 pin

1	ADB	3	+5V
2	N.C.	4	GND

SAFETY CHECK-OUT
(US Model only)

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.

2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.

3. Check that all control knobs, shields, covers, ground straps, and mounting hardware have been replaced. Be absolutely certain that you have replaced all the insulators.

4. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.

5. Look for parts which, though functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.

6. Check the line cords for cracks and abrasion. Recommend the replacement of any such line cord to the customer.

7. Check the B+ and HV to see if they are at the values specified. Make sure your instruments are accurate; be suspicious of your HV meter if sets always have low HV.

8. Check the metal trim, metallized knobs, screws, and all other exposed metal parts for AC leakage.
   Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5mA (500 microampers). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufactures' instructions to use these instruments.

2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.

3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The "limit" indication is 0.75V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2V AC range are suitable. (See Fig. A)

HOW TO FIND A GOOD EARTH GROUND

A cold-water pipe is guaranteed earth ground; the cover-plate retaining screw on most AC outlet boxes is also at earth ground. If the retaining screw is to be used as your earth-ground, verify that it is at ground by measuring the resistance between it and a cold-water pipe with an ohmmeter. The reading should be zero ohms. If a cold-water pipe is not accessible, connect a 60-100 watts trouble light (not a neon lamp) between the hot side of the receptacle and the retaining screw. Try both slots, if necessary, to locate the hot side of the line, the lamp should light at normal brilliance if the screw is at ground potential. (See Fig. B)

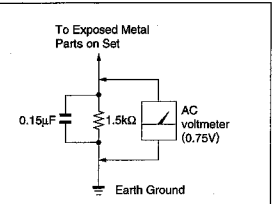


Fig. A. Using an AC voltmeter to check AC leakage.

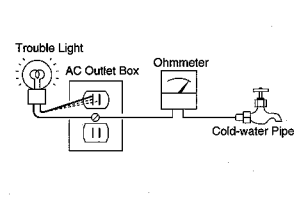


Fig. B. Checking for earth ground.

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WARNING!!

AN ISOLATION TRANSFORMER SHOULD BE USED DURING ANY SERVICE TO AVOID POSSIBLE SHOCK HAZARD, BECAUSE OF LIVE CHASSIS.
THE CHASSIS OF THIS RECEIVER IS DIRECTLY CONNECTED TO THE AC POWER LINE.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL FOR SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY. CIRCUIT ADJUSTMENTS THAT ARE CRITICAL FOR SAFE OPERATION ARE IDENTIFIED IN THIS MANUAL. FOLLOW THESE PROCEDURES WHENEVER CRITICAL COMPONENTS ARE REPLACED OR IMPROPER OPERATION IS SUSPECTED.

HIGH TEMPERATURE OF THE LAMP

The temperature around the lamp became awfully high while the power on or immediately after power off.
Handle with care to not scald.

ATTENTION!!

AFIN D'EVITER TOUT RESQUE D'ELECTROCUTION PROVENANT D'UN CHÂSSIS SOUS TENSION, UN TRANSFORMATEUR D'ISOLEMENT DOIT ETRE UTILISÉ LORS DE TOUT DÉPANNAGE. LE CHÂSSIS DE CE RÉCEPTEUR EST DIRECTEMENT RACCORDÉ À L'ALIMENTATION SECTEUR.

ATTENTION AUX COMPOSANTS RELATIFS À LA SÉCURITÉ!!

LES COMPOSANTS IDENTIFIÉS PAR UNE TRAME ET PAR UNE MARQUE ⚠ SUR LES SCHÉMAS DE PRINCIPE, LES VUES EXPLOSÉES ET LES LISTES DE PIECES SONT D'UNE IMPORTANCE CRITIQUE POUR LA SÉCURITÉ DU FONCTIONNEMENT. NE LES REMPLACER QUE PAR DES COMPOSANTS SONY DONT LE NUMÉRO DE PIÈCE EST INDIQUÉ DANS LE PRÉSENT MANUEL OU DANS DES SUPPLÉMENTS PUBLIÉS PAR SONY. LES RÉGLAGES DE CIRCUIT DONT L'IMPORTANCE EST CRITIQUE POUR LA SÉCURITÉ DU FONCTIONNEMENT SONT IDENTIFIES DANS LE PRÉSENT MANUEL. SUIVRE CES PROCÉDURES LORS DE CHAQUE REMPLACEMENT DE COMPOSANTS CRITIQUES, OU LORSQU'UN MAUVAIS FONCTIONNEMENT EST SUSPECTÉ.

SECTION 1
GENERAL

The operating instructions mentioned here are partical abstracts from the Operating Instruction Manual and Installation Manual. The page numbers of the Operating Instruction Manual and Installation Manual remain as in the manual.

1-1. VPL-S500U/S500E/S500M

Features

High brightness, high picture quality

- **High brightness**
  Adopting the long service life, the 250 W, metal halide lamp and new developed optical system allow high brightness (light output 450 ANSI lumen) and excellent uniformity on the picture.

- **High resolution**
  By adopting three 1.3-inch, about 520,000-pixel S VGA[1] panels, this projector offers resolution of 832 × 624 pixels for RGB input and 600 horizontal TV lines for composite video input.

- **Superior color reproduction**
  The superior characteristics of the metal halide lamp and the optical design of the projector allow superior color reproduction.

Easy presentation

- **Remote Commander with mouse control function**
  The Remote Commander can control a mouse for a computer connected to the mouse receiver.

- **High portability**
  This projector comes with convenient features for transportation such as a carrying handle and a Remote Commander pocket on the cabinet to keep the Remote Commander.

Easy setup

- **Easy setup with external equipment**
  This projector has 19 kinds of preset data for input signals. You can get an optimum picture by simply connecting an equipment with supplied cable.

- **Flexible setup**
  This projector is designed to be installed on the table or the ceiling. A 1.5x zoom lens is provided as standard equipment.

Accepts various input signals

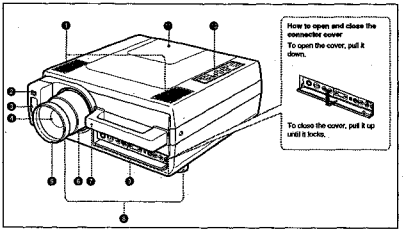
This projector accepts horizontal frequencies of 15, 24 to 57 kHz and vertical frequencies of 50 to 85 Hz. You can project pictures from VGA or XGA computers, VCRs, and video cameras.

- **Compatible with five color systems**
  NTSC, PAL, SECAM, NTSC 4.43[2], or PAL-M color system can be selected automatically or manually.

1) S VGA is a registered trademark of the International Business Machines Corporation, U.S.A.
2) NTSC4.43 is the color system used when playing back a video recorded on NTSC on a NTSC4.43 system VCR.

Location and Function of Controls

Front



❶ **Speakers**

❷ **Front remote control detector**

❸ **Remote Commander pocket**
Houses the supplied Remote Commander. When inserting the Remote Commander, make sure the infrared transmitter is facing forwards and push it until it clicks.
To take out the Remote Commander from the pocket, push it once and pull it out.

❹ **Lens**
Remove the lens cap before projection.

❺ **Focus ring**
Adjusts the picture focus.

❻ **Zoom ring**
Adjusts the size of the picture.

❼ **Carrying handle**
Use the handle for carrying the projector.

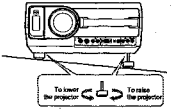
❽ **Adjusters**
Use the adjusters to keep the projector level if it is installed on an uneven surface.

❾ **Connector panel**
For details, see page 9 (EN).

❿ **Control panel**
For details, see page 8 (EN).

⓫ **Lamp cover**

How to use the adjusters

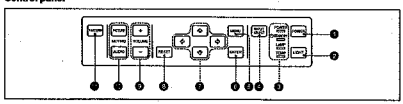


While lifting the projector, turn the adjusters and adjust the height so that the projector becomes level. There are two adjusters at the front and one at the rear of the projector.

Note
Be careful not to let the projector down on your fingers.

Location and Function of Controls

Control panel



❶ POWER key
Press to turn the projector on and off once the projector is in the standby mode. The POWER indicator lights in green when the power is turned on.
When turning off the power, press the POWER key twice following the message on the screen, or press and hold the key for about one second.
For details on steps for turning off the power, see "To turn off the power" on page 17 (EN).

❷ LIGHT key
Lights the back lighting (orange) for the control panel when the power is turned on. Press again to turn off the back lighting.

❸ Indicators
POWER: Lights in green when the power is turned on.
Flashes in green while the cooling fan runs after turning off the power with the POWER key. The fan runs for about 90 seconds after turning off the power.
The POWER indicator flashes quickly for the first minute. During this time, you will not be able to turn the power back on with the POWER key.

STANDBY: Lights in red when the MAIN POWER switch at the rear of the projector is turned on. Once in the standby mode, you can turn the projector on with the POWER key on the control panel or the Remote Commander.

Note
When the MAIN POWER switch is turned off, there will be a slight delay before the indicator goes off.

LAMP: Lights up or flashes under the following conditions:
- Lights up when a trouble has prevented the lamp from lighting.
- Flashes when the lamp cover or air filter cover is not secured firmly.

Note
When the LAMP indicator lights up, never open the lamp cover if the projector is installed on the ceiling.

TEMP (Temperature): Lights up or flashes under the following conditions:
- Lights up when temperature inside the projector becomes unusually high.
- Flashes when the fan inside the projector stops.

For details on the LAMP and the TEMP indicators, see page 55 (EN).

❹ INPUT SELECT key
Selects the input signal. Each time the key is pressed, the video signal is switched between the VIDEO IN and INPUT A connectors and the audio signal is switched between the AUDIO IN L/R jacks and INPUT A connectors.

❺ MENU key
Press to display the on-screen menu. Press again to clear the menu.

❻ ENTER key
Press to enter the settings of items in the menu system.

❼ Arrow keys (↑/↓/←/→)
Used to move the on-screen cursor or to make various adjustments.

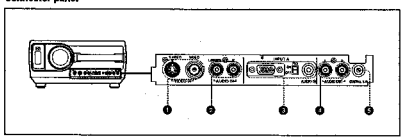
❽ RESET key
Press to restore the value of an item back to its factory preset value. This key functions when the menu or a setting item is displayed on the screen.

❾ VOLUME +/– keys
Adjust the volume of the built-in speakers and output level of the AUDIO OUT jacks.
+ : Increases the volume.
– : Decreases the volume.

❿ MUTING keys
Cuts off the picture and sound.
PICTURE: Press to cut off the picture. Press again to restore the picture.
AUDIO: Press to cut off the sound. Press again or press the VOLUME + key to restore the sound.

⓫ PATTERN key
Displays a pattern on the screen for focus adjustment. Press again to clear the pattern.

Connector panel



❶ VIDEO IN connectors
S VIDEO (mini DIN 4-pin): Connects to the S video output (Y/C video output) of a video equipment.
VIDEO (BNC-type): Connects to the composite video output of video equipment.

Note
If you have video equipments connected to both the S VIDEO and VIDEO connectors, the signal from the S VIDEO is selected. When showing video connected to the VIDEO connector, be sure not to connect a cable to the S VIDEO connector.

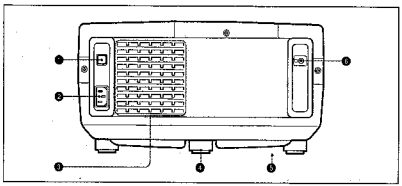
❷ AUDIO IN L (MONO)/R jacks (phone type)
Connect to the audio output jacks of an equipment. For stereo equipment, use both the L and R jacks; for monaural equipment, use the L (MONO) jack only.

❸ INPUT A connectors
RGB input connector (HD D-sub 15-pin, female): Connect to the monitor output connector on a computer using the supplied cable. Use the optional cable to input a component signal.
75-ohm termination switch (ON/OFF): Normally set to ON. Set it to OFF when the projector is connected to a computer and a monitor.
AUDIO IN jacks (stereo mini jack): Connects to the audio output jack on a computer.

❹ AUDIO OUT L/R jacks (phono type)
Connects to external active speakers.
The volume of the speakers can be controlled by the VOLUME keys on the projector or the Remote Commander.

❺ CONTROL S IN/PLUG IN POWER (DC 5V) jack (stereo mini jack)
Connects to the CONTROL S OUT jack of the supplied Remote Commander when using as a wired Remote Commander.

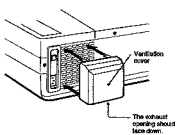
Rear



❶ MAIN POWER switch (⏻ON/■OFF)
Turns the main power on and off.

❷ AC IN socket
Connect the supplied AC Power cord.

❸ Ventilation holes (exhaust)
If you need to reduce the fan noise, install the supplied ventilation cover over the holes.



Note
If the supplied AC power cord plug does not match the wall socket in your country, consult qualified Sony personnel.

❹ Adjuster
Use the adjuster to keep the projector level if it is installed on an uneven surface.
For details on using the adjuster, see "How to use the adjuster" on page 7 (EN).

❺ Ventilation holes (intake)

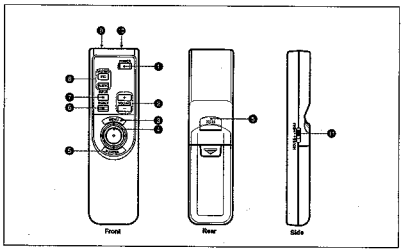
Notes
- Do not place anything near the ventilation holes as it may cause internal heat build-up.
- Do not place your hand or objects near the ventilation holes – the air coming out is hot.

❻ Rear remote control detector

Remote Commander

The Remote Commander may be used as a wireless or wired Remote Commander.
For details on operation of the keys not mentioned here, see the description in the control panel section.

If you connect the mouse receiver to a computer, you can use the Remote Commander as a mouse for a connected computer.
For details, see "Operating a Computer from the Remote Commander" on page 15 (EN).



❶ POWER key

❷ VOLUME +/– keys

❸ MENU key

❹ Joy stick
Used to move the on-screen cursor or to make various adjustments.

❺ ENTER keys

❻ RESET key

❼ INPUT key

❽ MUTING PIC/AUDIO keys
The MUTING PIC key has the same function as the MUTING PICTURE key on the control panel.

❾ CONTROL S OUT jack (stereo minijack)
Connect to the CONTROL S IN jack on the projector when using the Remote Commander as a wired Remote Commander. When using the Remote Commander as a wired Remote Commander by connecting a stereo remote commander cable, you do not need to install the batteries since the power is supplied from the CONTROL S IN jack on the projector.

❿ Infrared transmitter

⓫ MOUSE/MENU switch
Normally, set to MENU.
Set to MOUSE when you operate the mouse on a computer connected to the mouse receiver from the Remote Commander.
For details, see "Operating a Computer from the Remote Commander" on page 15 (EN).

Battery Installation

1 Push and slide to open the lid.

2 Install the two size AA (R6) batteries (supplied) with the correct polarity.

3 Replace the lid.

Notes on batteries

- Be careful that the battery orientation is correct when inserting batteries.
- Do not mix old battery with new one, or different types of batteries.
- If you do not intend to use the Remote Commander for a long time, remove the batteries to avoid damage from battery leakage. If a battery has leaked, remove the batteries, wipe the battery compartment dry and replace the batteries with new ones.

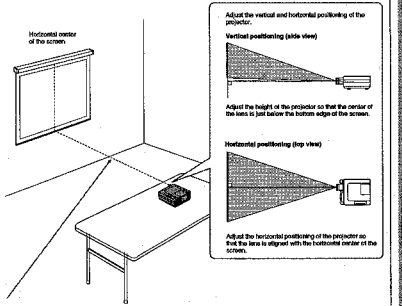
Notes on wireless Remote Commander operation

- Be sure that there is nothing to obstruct the infrared beam between the Remote Commander and the projector.
- The operation range is limited. The shorter the distance between the Remote Commander and the projector, the wider the angle within which the commander can control the projector.

- The remote control detectors on the projector do not operate when the Remote Commander is being used as a wired Remote Commander. If you wish to use the Remote Commander as a wireless Remote Commander, be sure to remove the connecting cable from both the Remote Commander and the projector.

Installing the Projector

This section describes the installation arrangements for installing the projector on a table. For ceiling installation, consult with qualified Sony personnel (see page 31 (EN)).


Horizontal center of the screen
Adjust the vertical and horizontal positioning of the projector.
Vertical positioning (side view)
Adjust the height of the projector so that the center of the lens is just below the bottom edge of the screen.
Horizontal positioning (top view)
Adjust the horizontal positioning of the projector so that the lens is aligned with the horizontal center of the screen.

The distance between the lens and the screen varies depending on the size of the screen. Use the following table as a guide.
The table below shows the projection distance for Macintosh 16" input (832 (horizontal) × 624 (vertical) dots). The projector distance will be longer by 1.5% for XGA input, by 4% for S VGA (800 × 600) and video input, and by 30% for VGA (640 × 480) input.

Unit: m (feet)

Screen size (inches)		40	60	80	100	120	150	180	200	250	300
Distance	Minimum	1.5 (4.9)	2.3 (7.4)	3.0 (10.0)	3.8 (12.5)	4.6 (15.1)	5.8 (18.9)	7.0 (22.8)	7.7 (25.4)	9.7 (31.8)	11.5 (39.2)
	Maximum	2.2 (7.2)	3.3 (10.9)	4.5 (14.8)	5.6 (18.3)	6.7 (22.0)	8.4 (27.6)	10.1 (33.2)	11.3 (36.5)	14.1 (46.2)	16.8 (55.1)

For detailed information on installation measurements, see page 30 (EN).

Connecting with a Computer or a VCR

This section describes how to connect the projector with a computer or a VCR and external active speakers. For details on how to connect other equipment, see page 32 (EN).
Also refer to the instruction manuals of the equipment to be connected.

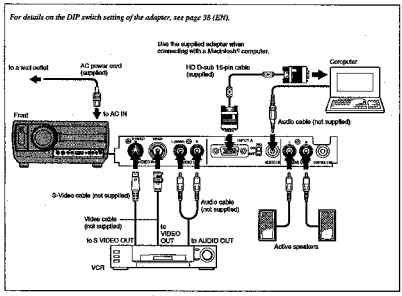
Notes

- This unit accepts the VGA, S VGA, and XGA signals. However, we recommend you to set the output mode of your computer to the S VGA mode for the external monitor.
- If you set your computer, such as a note-type IBM PC/AT compatible, to output the signal to both the display of your computer and the external monitor, the picture may not appear properly. In such cases, set the output mode of your computer to output the signal to only the external monitor. *For details, refer to the operating instructions supplied with your computer.*

When making connections, be sure to:

- turn off all equipment before making any connections.
- use the proper cables for each connection.
- insert the plugs of the cables properly; plugs that are not fully inserted often generate noise. When pulling out a cable, be sure to pull it out from the plug, not the cable itself.

For details on the DIP switch setting of the adapter, see page 38 (EN).



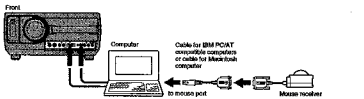
1) Macintosh is a registered trademark of Apple Computer, Inc.

Operating a Computer from the Remote Commander

If you connect the supplied mouse receiver to the mouse port of a computer, you can operate the mouse function of a computer with the Remote Commander.
Set the MOUSE/MENU switch to MOUSE when you operate a computer connected to the mouse receiver from the Remote Commander.
When the MENU/MOUSE switch is set to MOUSE, the MENU, ENTER keys and joy stick on the Remote Commander function as follows.

Key and joy stick	Function	
	IBM PC/AT1) compatible, Serial	Macintosh
MENU	Left button	Mouse button
ENTER (front)	Right button	Mouse button
ENTER (rear)	Right button	Mouse button
Joy stick	Corresponds with the movements of the mouse	

When using an IBM PC/AT compatible computer
For details, see the supplied RM-PJ21 operating instructions.



When your computer has a serial port, you can directly connect the mouse receiver cable to the port.
When you connect to the IBM PC/AT compatible or Macintosh computer, use the supplied conversion cables.

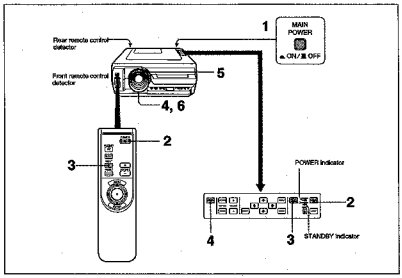
Computer	IBM PC/AT compatible	Macintosh
Conversion cable	Cable for IBM (for PC/AT compatible computer, PS/2 type) (Mini DIN 6-pin←→D-sub 9-pin)	Cable for Macintosh (Mini DIN 4 pin←→ D-sub 9-pin)

Note

Be sure that there is nothing to obstruct the infrared beam between the Remote Commander and the mouse receiver.

1) IBM PC/AT is a registered trademark of International Business Machines Corporation, U.S.A.

Projecting



1 Press the MAIN POWER switch on the rear of the projector (⏏ ON).

The STANDBY indicator lights in red and the projector goes into the standby mode.

2 Press the POWER key on the Remote Commander or the control panel.

The POWER indicator lights in green.

3 Switch on equipment connected to the projector. Press the INPUT SELECT key on the control panel or the INPUT key on the Remote Commander to select the input source.

INPUT A: Selects audio and video signals input from the INPUT A connectors.

VIDEO: Selects signal input from the VIDEO IN connectors and AUDIO IN L/R jacks.
(If you have made connections to both the S VIDEO and the VIDEO connectors, the signal from the S VIDEO connector is selected.)

4 Press the PATTERN key on the control panel to display the H test pattern, and turn the focus ring to adjust the focus.

Press the PATTERN key again to clear the pattern.

5 Turn the zoom ring to adjust the size of the picture.

6 Turn the focus ring again to adjust the focus.

Note

Do not look into the lens when the projector lamp is on.

To	Press
Adjust the volume	the VOLUME +/– keys.
Cut off the sound	the AUDIO MUTING key. To restore the sound, press the AUDIO MUTING key again or press the VOLUME + key.
Cut off the picture	the PICTURE MUTING key (PIC MUTING key on the Remote Commander). To restore the picture, press the PICTURE MUTING key again.

To turn off the power

1 Press the POWER key on the control panel or the Remote Commander.

The following message appears to verify if you really want to turn off the power.

Note

The message will disappear if you press a key except the POWER key, or if you do not press any key for five seconds.

2 Press the POWER key again on the control panel or the Remote Commander.

The POWER indicator flashes in green and the fan continues to run for about 90 seconds to reduce the internal heat. The POWER indicator flashes quickly for the first minute. During this time, you will not be able to turn the power back on with the POWER key. After about one minute, you can turn on the power with the POWER key.

3 Wait until the fan stops running and the STANDBY indicator lights in red; then press the MAIN POWER switch to turn off the main power (■ OFF).

When you cannot confirm the on-screen message

When you cannot confirm the on-screen message in a certain condition, you can turn off the power by holding the POWER key on the control panel or the Remote Commander for about one second.

Notes

- **Do not press the MAIN POWER switch while the fan is still running; the fan will stop while the lamp is still hot, leading to breakdown.**
- **To make the lamp life last longer, do not turn off the power at least for about 10 minutes after turning on the power.**

Using the MENU

The projector is equipped with an on-screen menu for making various adjustments and settings.
To select the language used in the menu, see page 27 (EN).

1 Press the MENU key.
The menu display appears.
The menu presently selected is highlighted in blue.

2 Use the ♦ or ♦ keys on the control panel to select a menu, then press the ♦ or the ENTER key. On the Remote Commander, move the joy stick up or down to select a menu, then move it to the right or press the ENTER key.
The selected menu appears.

Menus Setting items

3 Make setting or adjustment on an item.
For details on setting individual items, see the relevant menu pages.

To clear the menu display

Press the MENU key. The menu display disappears automatically if no key is pressed for one minute.

To reset items that have been adjusted

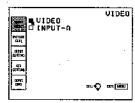
Press the RESET key. "Reset complete!" appears on the screen and the settings appearing on the screen will be reset to their factory preset values.

About the memory of the settings

The settings other than the INPUT SETTING menu are automatically stored to the projector memory. Adjustments made in the INPUT SETTING menu have to be saved with the SAVE TO MEMORY item in the INPUT SETTING menu.

The INPUT SELECT Menu

The INPUT SELECT menu is used for selecting the input signal.



Operation

Use the ↑ or the ↓ key on the control panel to select the input, then press ↔ key.
On the Remote Commander, move the joy stick up or down to select the input, then move it to the left.

VIDEO

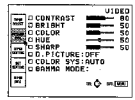
Selects signal input from the VIDEO IN (S VIDEO or VIDEO) connectors and the AUDIO IN L/R jacks. If you have equipment connected to both the VIDEO and the S VIDEO connectors, the S VIDEO will be selected.

INPUT-A

Selects the audio and video signals input from the INPUT A connectors.

The PICTURE CTRL Menu

The PICTURE CTRL menu is used for adjusting the picture. Adjustable items are displayed in green.



Operation

1. Select an item

Use the ↑ or the ↓ key on the control panel to select the item, then press the ↔ or the ENTER key.
On the Remote Commander, move the joy stick up or down to select the item, then move it to the right or press the ENTER key.

2. Adjust an item

- When changing the adjustment level:
  To increase the number, press the ↑ or the → key.
  On the Remote Commander, move the joy stick up or to the right.
  To decrease the number, press the ↓ or the ← key.
  On the Remote Commander, move the joy stick down or to the left.
  Press the ENTER key to restore the original screen.

- When changing the setting:
  Press the ↑ or the ↓ key on the control panel to change the setting.
  On the Remote Commander, move the joy stick up or down to change the setting.
  To restore the original screen, press the ENTER or the ↔ key.
  On the Remote Commander, move the joy stick to the left.

CONTRAST

Adjusts the picture contrast.

The higher the setting, the greater the contrast.
The lower the setting, the lower the contrast.

BRIGHT

Adjusts the picture brightness.

The higher the setting, the brighter the picture.
The lower the setting, the darker the picture.

COLOR

Adjusts color intensity.

The higher the setting, the greater the intensity.
The lower the setting, the lower the intensity.

HUE

Adjusts skin tones.

A higher the setting, the picture becomes greenish.
A lower the setting, the picture becomes purplish.

SHARP

Adjusts the picture sharpness.

The higher the setting, the sharper the picture.
The lower the setting, the softer the picture.

D. (Dynamic) PICTURE

Emphasizes the black color.

ON: Emphasizes the black color to produce a bolder "dynamic" picture.
OFF: Reproduces the dark portions of the picture accurately, in accordance with the source signal.

COLOR SYS (System)

Selects the color system of the input signal.

Normally, set to AUTO.
If the picture is distorted or colorless, select the color system according to the input signal.

GAMMA MODE

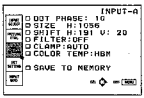
Selects a gamma correction curve.

GRAPHICS: Improves the reproduction of half tones. Photos can be reproduced in natural tones.
TEXT: Contrasts black and white. Suitable for images that contains lots of text.

Items cannot be adjusted depending on the types of input signal

Item	Cannot be adjusted with
COLOR	Signal input from INPUT A connectors, black-and-white signal
HUE	Input signal other than NTSC 3.58/4.43
SHARP	RGB signal
D. PICTURE	RGB signal
COLOR SYS	Signal input from INPUT A connectors
GAMMA MODE	Signal input from VIDEO IN connectors, component signal input from INPUT A connectors.

The INPUT SETTING menu is used to adjust the input signal. Adjustable items are displayed in green.



Operation

1. Select an item
Use the ↑ or ↓ key on the control panel to select the item, then press the ↵ or the ENTER key.
On the Remote Commander, move the joy stick up or down to select the item, then move it to the right or press the ENTER key.

2. Adjust an item
• When changing the adjustment level:
To increase the number, press the → or the ↑ key.
On the Remote Commander, move the joy stick up or to the right.
To decrease the number, press the ← or the ↓ key.
On the Remote Commander, move the joy stick down or to the left.
Press the ENTER key to restore the original screen.

• When changing the setting:
Press the → or the ↓ key to change the setting.
On the Remote Commander, move the joy stick up or down to change the setting.
To restore the original screen, press the ENTER or the ↵ key.
On the Remote Commander, move the joy stick to the left.

DOT PHASE

Adjusts the dot phase of the LCD panel and the signal input from INPUT A.

SIZE

Adjusts the horizontal size of pictures input from INPUT A.

The higher the setting, the larger the horizontal size of the picture.
The lower the setting, the smaller the horizontal size of the picture. Adjust the setting according to the horizontal dots of the input signal.

Input signal	Setting
VGA[1] mode3 (640×480 dots)	800
VESA[2] 72 Hz (640×480 dots)	832
Macintosh13-inch mode (separate sync)	864
Macintosh16-inch mode	1152
VGA mode1 (640×350 dots)	800
VGA mode2 (640×400 dots)	800
VESA 75 Hz (640×480 dots)	840
S VGA VESA 56 Hz (800×600 dots)	1024
S VGA VESA 60 Hz (800×600 dots)	1056
S VGA VESA 72 Hz (800×600 dots)	1040
S VGA VESA 75Hz (800×600 dots)	1056
S VGA VESA 85 Hz (800×600 dots)	1048
XGA VESA 60 Hz (1024×768 dots)	1076
XGA VESA 72 Hz (1024×768 dots)	1063

Notes
• When a resolution of a signal input from the INPUT A connectors is less than 832 (horizontal) × 624 (vertical) dots, areas around the pictures are displayed in black.
• Compressed XGA signal is reproduced.

1) VGA is a registered trademark of International Business Machines Corporation, U.S.A.
2) VESA is a registered trademark of Video Electronics Standard Association.

SHIFT

Adjusts the position of the picture input from INPUT A.

H adjusts the horizontal position of the picture.
V adjusts the vertical position of the picture.
As the setting for H increases, the picture moves to the right, and as the setting decreases, the picture moves to the left.
As the setting for V increases, the picture moves up, and as the setting decreases, the picture moves down.
Use the ← or the → key to adjust the horizontal position and the ↑ and ↓ key for the vertical position.

FILTER

Corrects the vertical bands that appear on the picture input from INPUT A.

The vertical bands may occur when an RGB signal which horizontal resolution is other than 640 dots is input. In such cases, set to ON. The picture will loose some clarity, but the vertical bands will be reduced.
Set to OFF to associate a dot of the input signal with a pixel of the LCD.

CLAMP

Corrects the luminance of the picture input from INPUT A.

CLAMP is used as a standard for setting the black level of a picture correctly. The standard position of the clamp depends on the kind of sync. signal being used. Normally, the projector CPU judges the signal and sets the position automatically. However, the CPU can misjudge the signal because of noise. If the luminance of the picture seems to be incorrect (too dark, the black color is too light, or the luminance is unstable) the clamp position may need to be changed.

AUTO: Automatic setting mode. Normally set to this position.
SonG: Set to this position if the black seems too light or greenish.
H/C: Set to this position if the picture is too dark or luminance is unstable.

NOTE
If the luminance is still incorrect after changing the clamp setting, check the input signal and the connections.

COLOR TEMP

Adjusts the color temperature.

HIGH: Makes the white color bluish.
LOW: Makes the white color reddish.
HBM (High Brightness Mode): Reproduces a picture with high brightness.

SAVE TO MEMORY

You can save the settings in the INPUT SETTING menu in the projector memory. Whenever a new setting is saved, the previous settings are overwritten.

Once you have adjusted the settings, select SAVE TO MEMORY and press the ENTER or the → key. When the settings have been saved, the message "Saving is complete!" appears.

Items cannot be adjusted depending on the types of input signal

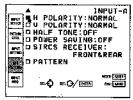
Item	Cannot be adjusted with
DOT PHASE	Signal input from VIDEO IN connectors
SIZE	Signal input from VIDEO IN connectors
FILTER	Signal input from VIDEO IN connectors, component input signal, 15k RGB signal
CLAMP	Signal input from VIDEO IN connectors, component input signal, 15k RGB signal
SHIFT	Signal input from VIDEO IN connectors

The SET SETTING Menu

The SET SETTING menu is used for changing the settings of the projector. Adjustable items are displayed in green.

<page 1>

<page 2>



The SET SETTING menu consists of two pages.
To change the page, press the ❖ or ❖ the key until the page changes when selecting an item.
On the Remote Commander, move the joy stick up or down until the page changes when selecting an item.

Operation

1. Select an item
Use the ❖ or the ❖ key on the control panel to select the item, then press the ❖ or the ENTER key.
On the Remote Commander, move the joy stick up or down to select the item, then move it to the right or press the ENTER key.

2. Change the setting
Press the ❖ or the ❖ key to change the setting.
On the Remote Commander, move the joy stick up or down to change the setting.
To restore the original screen, press the ENTER or the ❖ key.
On the Remote Commander, move the joy stick to the left.

STATUS (on-screen display)

Sets up the on-screen display.

ON: Shows all of the on-screen displays.
OFF: Turns off the on-screen displays except for the menus, "NO INPUT", "PIC/AUDIO MUTING", a message when turning off the power, and warning messages.
ALL OFF: Turns off all of the on-screen displays except for the menus, a message when turning off the power, and warning messages.

Note

When you set STATUS to ALL OFF, the displays for changing the adjustment level (which are displayed on one line at the bottom) are not displayed.

PIC. MUTING

Set to ON to cut off the picture.
When set to ON, "PIC MUTING" appears on the screen.

AUDIO MUTING

Set to ON to cut off the sound.
When set to ON, "AUDIO MUTING" appears on the screen.

SPEAKER

Set to OFF to cut off the sound of the internal speakers. When set to OFF, "SPEAKER OFF" appears on the screen when you turn on the power.

INPUT-A

Selects the RGB or COMPONENT signal input from INPUT A.

Note

If the setting is not correct, "Please check INPUT-A in the SET SETTING." appears on the screen and the color of the picture becomes strange or the picture is not displayed.

LANGUAGE

Selects the language used in the menu and on screen displays.

Available languages are: English, French, German, Italian, Spanish, Japanese and Chinese.

H (Horizontal) POLARITY

Set to REVERSE to reverse the horizontal orientation of the picture.

V (vertical) POLARITY

Set to REVERSE to reverse the vertical orientation of the picture.

HALF TONE

Set to ON to reduce the luminance of the menu background.

POWER SAVING

When set to ON, the projector goes into the power saving mode if no signal is input for 10 minutes. The power saving mode is canceled when a signal is input or whenever a key is pressed.

(Continued)

The SET SETTING Menu

SIRCS RECEIVER

Selects the remote control detectors on the front and rear of the projector.

FRONT & REAR: Activates both the front and rear detectors.
FRONT: Activates the front detector only.
REAR: Activates the rear detector only.

PATTERN

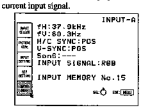
Press the ↔ or the ENTER key to display the H test pattern. Press the ↔ or the ENTER key to clear the pattern. The pattern disappears automatically if no key is pressed for one minute.

Item cannot be adjusted depending on the types of Input signal

Item	Cannot be adjusted with
INPUT-A	Signal input from VIDEO IN connectors

The INPUT INFO Menu

The INPUT INFO menu displays the information on a current input signal.



fH (Horizontal frequency)

Indicates the horizontal frequency of the input signal. This indication is only used as a reference, this is not absolute value.

fV (Vertical frequency)

Indicates the vertical frequency of the input signal. This indication is only used as a reference, this is not absolute value.

H/C (Horizontal/Composite)-SYNC

Indicates the polarity of the horizontal or the composite sync. signal. When the picture is being projected using its sync signal, POS (NEG) is displayed in green. When the picture is being projected without using sync signal, POS (NEG) is displayed in white.
POS: The polarity of the sync. signal is positive.
NEG: The polarity of the sync. signal is negative.
---: No sync. signal is input.

V(Vertical) SYNC

Indicates the polarity of the vertical sync. signal. When the picture is being projected using its sync signal, POS (NEG) is displayed in green. When the picture is being projected without using sync signal, POS (NEG) is displayed in white.
POS: The polarity of the sync. signal is positive.
NEG: The polarity of the sync. signal is negative.
---: No sync. signal is input.

SonG

Indicates the polarity of the Sync on Green. When the picture is being projected using its sync signal, NEG is displayed in green. When the picture is being projected without using sync signal, NEG is displayed in white.
NEG: The polarity of the sync. signal is negative.
---: No Sync. signal is input.

INPUT SIGNAL

Displays the type of current input signal.
NTSC 3.58: NTSC 3.58 input signal from VIDEO IN
NTSC 4.43: NTSC 4.43 input signal from VIDEO IN
PAL: PAL input signal from VIDEO IN
SECAM: SECAM input signal from VIDEO IN
PAL-M: PAL-M input signal form VIDEO IN
S-VIDEO: S-VIDEO input signal from VIDEO IN
RGB: RGB input signal
COMPONENT: Component input signal
B/W 50: Black and white input signal from VIDEO IN (vertical frequency: 50 Hz)
B/W 60: Black and white input signal from VIDEO IN (vertical frequency: 60 Hz)

INPUT MEMORY No.

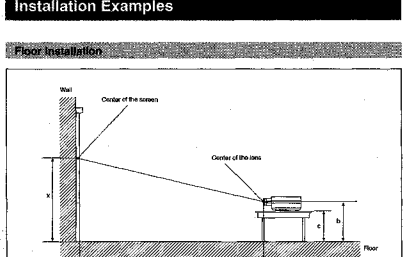
Indicates the memory number of the INPUT SETTING data used for current input signal.
Each preset signal is stored in following memory number.

Memory No.	Preset signals	fH(kHz)	fV(Hz)	Sync
01	VMode (60 Hz)	–	–	–
02	VMode (50 Hz)	–	–	–
03	15k RGB / Component(60 Hz)	–	–	Composite sync/ Sync on G
04	15k RGB/ Component(50 Hz)	–	–	Composite sync/ Sync on G
05	VGA mode9	31.5	59.9	H-neg V-neg
06	VESA 72Hz	37.9	72.8	H-neg V-pos
07	Macintosh 13" separate sync	35.0	66.7	H-neg V-neg
08	Macintosh 16"	49.7	74.6	H-neg V-neg
09	VGA mode1	31.5	70.1	H-neg V-neg
10	VGA mode2	31.5	70.1	H-neg V-pos
12	VESA 75 Hz	37.5	75.0	H-neg V-neg
14	S VGA 56 Hz	35.2	56.3	H-neg V-neg
15	S VGA 60 Hz	37.9	60.3	H-pos V-pos
16	S VGA 72 Hz	48.1	72.2	H-pos V-pos
17	S VGA 75 Hz	46.9	75.0	H-pos V-pos
18	S VGA 85 Hz	53.7	85.1	H-pos V-pos
19	XGA VESA 60 Hz	48.4	60.0	H-neg V-neg
20	XGA VESA 70 Hz	56.5	70.1	H-neg V-neg

When signals other than the preset signals are input and adjusted in the INPUT SETTING menu, they are stored in memory numbers 23 to 42.

Installation Examples

Floor Installation



a: distance between the screen and the center of the lens
b: distance from the floor to the center of the lens
c: distance from the floor to the foot of the projector
x: lens
* Example of calculation for Macintosh 16" input (832 x 624 dots)

Unit: mm (inches)

Screen size (inches)		40	60	80	100	120	152	180	200	250	300
a	Minimum	1470 (57 ⅞)	2280 (89)	3040 (119 ¾)	3820 (150 ⅜)	4600 (181 ⅛)	5770 (227 ⅛)	6950 (273 ⅝)	7730 (304 ⅜)	9690 (381 ⅛)	11640 (458 ⅛)
	Maximum	2180 (85 ⅞)	3360 (132 ⅜)	4450 (175 ⅛)	5580 (219 ⅝)	6720 (264 ⅝)	8420 (331 ⅛)	10123 (398 ⅜)	11250 (443)	14090 (554 ⅝)	16910 (665 ⅝)
b		x-256 (13 ⅛)	x-504 (19 ⅞)	x-672 (26 ½)	x-840 (33 ⅛)	x-1008 (39 ⅝)	x-1260 (49 ⅝)	x-1511 (59 ½)	x-1679 (66 ⅛)	x-2099 (82 ⅝)	x-2519 (99 ⅛)
c		x-447 (17 ⅝)	x-615 (24 ⅛)	x-783 (30 ⅞)	x-951 (37 ⅜)	x-1119 (44 ⅛)	x-1371 (54)	x-1622 (63 ⅞)	x-1790 (70 ⅛)	x-2210 (87 ⅛)	x-2630 (103 ⅝)

• Calculation of installation measurement (unit: mm) for Macintosh 16" input.
SS: screen size diagonal (inches)
a (minimum) = ((SS × 49.958/1.29) − 86) × 1.025
a (maximum) =((SS × 78.110/1.29) − 82) × 0.975
b = x − (SS/1.29 × 11)
c = x − (SS/1.29 × 11+111)

• Calculation of installation measurement (unit: mm) for S-VGA and Video input.
SS: screen size diagonal (inches)
a (minimum) = ((SS × 49.958/1.26) − 86) × 1.025
a (maximum) =((SS × 78.110/1.26) − 82) × 0.975
b = x − (SS/1.26 × 11)
c = x − (SS/1.26 × 11+111)

• Calculation of installation measurement (unit: mm) for SXGA input.
SS: screen size diagonal (inches)
a (minimum) = ((SS × 49.958/1.29) − 86) × 1.025
a (maximum) =((SS × 78.110/1.29) − 82) × 0.975
b = x − (SS/1.29 × 11)
c = x − (SS × 11+111)

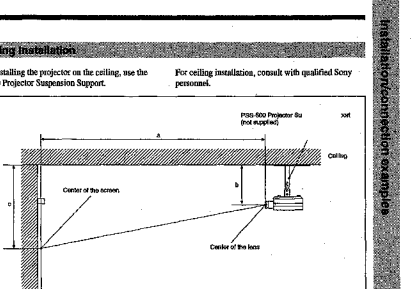
• Calculation of installation measurement (unit: mm) for XGA input.
SS: screen size diagonal (inches)
a (minimum) = ((SS × 49.958/1.29) − 86) × 1.025
a (maximum) =((SS × 78.110/1.29) − 82) × 0.975
b = x − (SS/1.29 × 11)
c = x − (SS × 11+111)

• Calculation of installation measurement (unit: mm) for VGA input.
SS: screen size diagonal (inches)
a (minimum) = ((SS × 49.958/1.26) − 86) × 1.025
a (maximum) =((SS × 78.110/1.26) − 82) × 0.975
b = x − (SS/1.26 × 11)
c = x − (SS/1.26 × 11+111)

Ceiling Installation

When installing the projector on the ceiling, use the PSS-500 Projector Suspension Support.

For ceiling installation, consult with qualified Sony personnel.



a: Distance between the screen and the center of lens
b: Distance between the ceiling and the center of the lens
c: Distance between the ceiling and the center of the screen
* Example of calculation for Macintosh 16" input (832 x 624 dots)

Unit: mm (inches)

Screen size (inches)		60	100	120	152	180	200	250	300
a	Minimum	3040 (119 ¾)	3820 (150 ⅜)	4600 (181 ⅛)	5770 (227 ⅛)	6950 (273 ⅝)	7730 (304 ⅜)	9690 (381 ⅛)	11640 (458 ⅛)
	Maximum	4450 (175 ⅛)	5580 (219 ⅝)	6720 (264 ⅝)	8420 (331 ⅛)	10120 (398 ⅜)	11250 (443)	14090 (554 ⅝)	16910 (665 ⅝)
b		247/272/297/347/372/397 mm (9 ¾ / 10 ⅝ / 11 ¾ / 13 ⅝ / 14 ⅝ / 15 ⅝ inches) adjustable							
c		b+672 (26 ½)	b+840 (33 ⅛)	b+1008 (39 ⅝)	b+1260 (49 ⅝)	b+1511 (59 ½)	b+1679 (66 ⅛)	b+2099 (82 ⅝)	b+2519 (99 ⅛)

• Calculation of installation measurement (unit: mm) for Macintosh 16" input.
SS: screen size diagonal (inches)
a (minimum) = ((SS × 49.958/1.29) − 86) × 1.025
a (maximum) =((SS × 78.110/1.29) − 82) × 0.975
c = b + (SS/1.29 × 11)

• Calculation of installation measurement (unit: mm) for SXGA input.
SS: screen size diagonal (inches)
a (minimum) = ((SS × 49.958/1.29) − 86) × 1.025
a (maximum) =((SS × 78.110/1.29) − 82) × 0.975
c = b + (SS/1.29 × 11)

• Calculation of installation measurement (unit: mm) for XGA input.
SS: screen size diagonal (inches)
a (minimum) = ((SS × 49.958/1.29) − 86) × 1.025
a (maximum) =((SS × 78.110/1.29) − 82) × 0.975
c = b + (SS/1.29 × 11)

• Calculation of installation measurement (unit: mm) for VGA input.
SS: screen size diagonal (inches)
a (minimum) = ((SS × 49.958) − 86) × 1.025
a (maximum) =((SS × 78.110) − 82) × 0.975
c = b + (SS × 11)

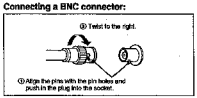
Connection Example

For details on how to connect a computer, a VCR or external active speakers, see page 14 (EN). Also refer to the instruction manual of the equipment to be connected.

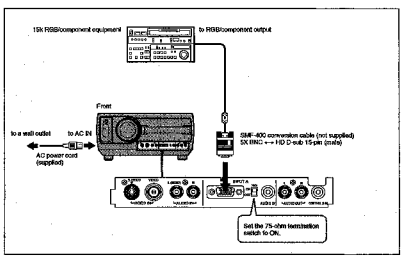
When making connections, be sure to:

- turn off all equipment before making any connections.
- use the proper cables for each connection.
- insert the plugs of the cables properly; plugs that are not fully inserted often generate noise. When pulling out a cable, be sure to pull it out from the plug, not the cable itself.

Connecting a BNC connector:



Connecting 15k RGB/Component Equipment


15k RGB/component equipment
to RGB/component output
Front
to a wall outlet
to AC IN
AC power cord (supplied)
SMF-400 conversion cable (not supplied) 5X BNC ↔ HD D-sub 15-pin (male)
INPUT-A
Set the 75-ohm termination switch to On.

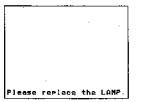
Notes

- This unit cannot accept separate sync signal with 15k RGB/component input signal. Use composite sync (negative) or Sync on Green.
- When inputting a frequency of VGA or an equivalent from an equipment such as scan-converter, use separate sync signal.
- This unit cannot accept a interlace signal of VGA or an equivalent other than 15k RGB/component signal.
- Select the RGB or COMPONENT signal with the INPUT-A item on the SET SETTING menu.

Maintenance

Replacing the Lamp

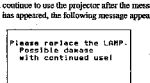
When it is time to replace the lamp, the message "Please replace the LAMP" appears on the screen when you turn on the projector. Once the message appears, replace the lamp promptly with a new PK-P1500[1] lamp.



The message disappears if any key on the control panel or the Remote Commander is pressed.

Notes

- If you continue to use the projector after the message above has appeared, the following message appears.



When this message appears, no key except the POWER key will be operable.

- After turning off the power, wait at least one hour before changing the lamp to give it time to cool down completely.

For details on replacement, refer to the instruction manual of the lamp.

Note

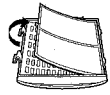
When the LAMP indicator lights up, never open the lamp cover if the projector is installed on the ceiling.

Cleaning the Air Filter

The air filter should be cleaned every 300 hours. When it becomes difficult to remove the dust from the filter, replace the filter with a new one.
To clean the air filter, follow the steps below:

1. Turn off the MAIN POWER switch and unplug the power cord.
2. Remove the air filter cover on the bottom of the projector.

3. Remove the air filter.



4. Remove the dust from the filter with a vacuum cleaner.
5. Attach the air filter and replace the cover.

Notes

- If the air filter is excessively dirty, wash it with a mild detergent solution and dry it in a shaded place.
- Be sure to attach the air filter cover firmly; the power will not be turned on if it is not closed securely.

1) PK-P1500 may not be available in some areas. For details, please consult your nearest Sony office.

Troubleshooting

If the projector appears to be operating erratically, try to diagnose and correct the problem, using the following guide. If the problem still persists, consult with qualified Sony personnel.

Symptom	Cause	Remedy
The power is not turned on.	The MAIN POWER switch is turned off.	Press the MAIN POWER switch at the rear of the projector *(see page 16 (EN))*.
	The power has been turned off and on with the POWER key at a short interval.	Wait for about one minute before turning on the power with the POWER key.
	The lamp cover is detached.	Close the lamp cover securely *(see page 33 (EN))*.
	The air filter cover is detached.	Close the air filter cover securely *(see page 33 (EN))*.
No picture and no sound.	Cable is disconnected.	Check that the proper connections have been made *(see pages 14 (EN) and 32 (EN))*.
	Input selection is incorrect.	Select the input source correctly.
No picture or no sound.	Either the picture or the sound is cut off.	Press the MUTING keys to release the muting function *(see page 17 (EN))*.
The picture is noisy.	Noise may appear on the background depending on the combination of the numbers of dot input from the connector and numbers of pixel on the LCD panel.	Change the desktop pattern on the connected computer.
When inputting sound through INPUT A, sound comes through one channel only.	Monaural sound is being input through the INPUT A connectors.	Input stereo sound.
The picture from INPUT A is colored strange.	Setting for INPUT-A in the SET SETTING menu is incorrect.	Select RGB or COMPONENT for INPUT-A in the SET SETTING menu according to the input signal *(see page 27 (EN))*.
"Please check INPUT-A in SET SETTING." appears in spite of inputting the correct signal from INPUT A.	Setting for INPUT-A in the SET SETTING menu is incorrect.	Select RGB or COMPONENT for INPUT-A in the SET SETTING menu according to the input signal (see page 27 (EN)).
"NO INPUT" appears when 15k RGB or component signal is input.	The sync signal is incorrect.	Input the correct sync signal (composite sync or sync on G signal: same on Y for component signal).
On-screen displays do not appear.	STATUS in the SET SETTING menu has been set to OFF or ALL OFF.	Set STATUS in the SET SETTING menu to ON *(see page 28 (EN))*.
Color balance is incorrect.	Picture has not been adjusted properly.	Adjust the picture *(see pages 21 (EN) and 22 (EN))*.
	Projector is set to wrong color system.	Set the COLOR SYS in the PICTURE CTRL menu to match the color system being input (see page 22 (EN)).
The picture is too dark.	Lamp is nearing the end of its life.	Change the lamp *(see page 33 (EN))*.
	Contrast or brightness has not been adjusted properly.	Adjust the contrast or brightness in the PICTURE CTRL menu properly (see page 21 (EN)).
The picture is not clear.	Picture is out of focus.	Adjust the focus *(see page 17 (EN))*.
	Condensation has occurred on the lens.	Leave the projector for about two hours with the power on.
The picture luminance is incorrect.	The CLAMP setting is wrong.	Set CLAMP correctly in the INPUT SETTING menu *(see page 24 (EN))*.
The LAMP indicator flashes.	The lamp cover or the air filter cover is detached.	Attach the cover securely *(see page 33 (EN))*.
The TEMP indicator lights up.	The internal temperature is unusually high.	Check to see that nothing is blocking the ventilation holes and leave the projector for about one hour *(see page 10 (EN))*.

Symptom	Cause	Remedy
The Remote Commander does not work.	The Remote Commander batteries are dead.	Replace with new batteries *(see page 12 (EN))*.
	The MOUSE/MENU switch has been switched to the MOUSE position.	Set the switch to MENU position.
	You are using the Remote Commander as a wireless Remote Commander, and it is connected to the projector.	Disconnect the cable.
	The unit is influenced of the fluorescent lamp.	Change the setting of SIRCS RECEIVER in the SET SETTING menu *(see page 26 (EN))*.
Any key does not function other than the POWER key.	The lamp has reached the end of its life.	Replace the lamp *(see page 31 (EN))*.

Note

- When the LAMP indicator lights up, **never open the lamp cover if the projector is installed on the ceiling.**
- If the lamp looks damaged when replacing, consult with qualified Sony personnel.
- If the lamp does not light even after replacing it with a new one, consult with qualified Sony personnel.
- If the TEMP indicator starts flashing, consult with qualified Sony personnel.

On-screen messages

Use the list below to check the meaning of the messages displayed on the screen.

Message	Meaning	Remedy
NO INPUT	No input signal	Check connections
Not applicable!	You have pressed the wrong key.	Press the appropriate key.
OPERATING TEMPERATURE TOO HIGH! This set will be shut down after 5 minutes.	Operating temperature is too high.	Turn off the power. Check to see that nothing is blocking the ventilation holes.
Frequency is out of range!	This input signal cannot be projected as the frequency is out of the acceptable range of the projector.	Input a signal that is within the range of the frequency.
Please check INPUT-A in SET SETTING.	You have input RGB signal from the computer when INPUT-A in the SET SETTING menu is set to COMPONENT.	Set INPUT-A correctly.
Please replace the LAMP.	The lamp has reached the end of its life.	Replace the lamp.

Maximum load: 15 kg (33 lb 1 oz)

The PSS-500 suspension support is designed to be used with models such as the Sony VPL-V500Q/QM LCD data projector or the Sony VPL-W400Q/QM LCD video projector.

Caution

- For installation, consult with qualified Sony personnel.
- The ceiling should be capable of supporting a weight of at least 80 kg (396 lb 13 oz); if not, the ceiling must be reinforced.
- When you attach the bracket directly to the ceiling, use commercially available M10 bolts with nuts and washers, depending on the ceiling. Use of other bolts, nuts, and washers other than M10 may present a danger of falling.
- Be sure to assemble and attach the bracket in the order indicated; otherwise the projector may fall.

Parts List

(a)	Upper ceiling mount bracket (1)	
(b)	Adjustment pipe (1)	
(c)	Adjustment pipe (1)	
(d)	Projector mount bracket (1)	
(e)	Bolt M6 x 35 (3) Parts number 4-055-828-11	

Parts List

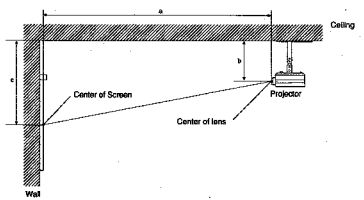
(f)	**Bolt M6 x 50 (2)**	Parts number 4047748-11	
(g)	**Screw M4 x 6**	Parts number 4047765-11	
(h)	**Washer M6 (3)**	Parts number 4055433-11	
(i)	**Washer M8 (4)**	Parts number 4047746-11	
(j)	**Spring washer M6 (3)**	Parts number 4055430-11	

(k)	**Toothed lock washer M8 (4)**	Parts number 4047749-11	
(l)	**Nut M8 (2)**	Parts numbe 4047742-11	
(m)	**6 mm pin (2)**	Parts number 4047744-11	
(n)	**Snap pin (2)**	Parts number 4047603-11	

Installation Diagram

For details of screen size and installation measurement for projection, refer to the Operating Manual of the projector or the Installation Manual of the projection lens (when using the optional lens).

Side view



a: Distance between the screen and the center of lens

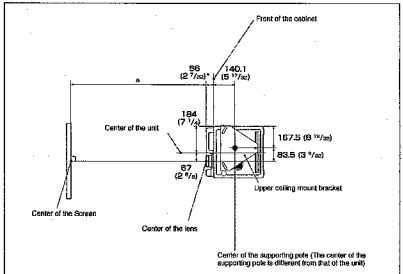
b: Distance between the ceiling and the center of lens. For details, see page 11.

c: Distance between the ceiling and the center of screen

Installation Diagram

Top view

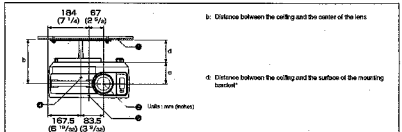
Align the center of the lens with the center of the screen.



* When using the standard lens equipped with VPL-V500Q/QM/W400Q/QM.

Front view

The lens is offset 83.5 mm (3 9/32 inches) to the right from the center of the supporting pole. When mounting, take care to align the center of the lens with the center of the screen; not the center of the supporting pole.



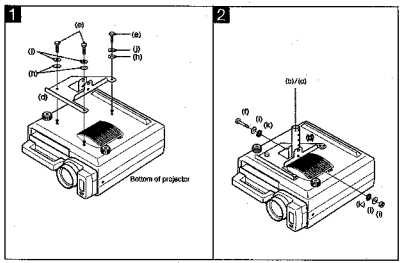
b: Distance between the ceiling and the center of the lens

d: Distance between the ceiling and the surface of the mounting bracket*

c: Distance between the bottom surface of the mounting bracket and the center of the lens: 97 mm (3 13/16 inches)

* Using adjustment plate (L) : 150/175/200 mm (5/7/7 7/8 inches)
Using adjustment plate (s) : 250/275/300 mm (9 7/8/10 7/8/11 13/16 inches)

Attaching to the ceiling

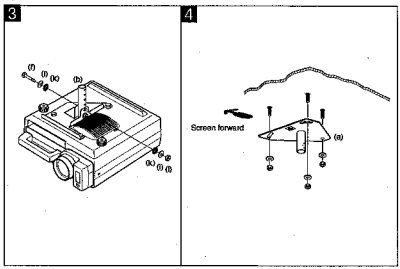


1 Turn the projector upside down and attach the projector mount bracket (d) using bolts M6 x 55 (e), washers M6 (h) and spring washers M6 (j).

Note

When attaching the bracket, be careful not to overtighten the bolts.

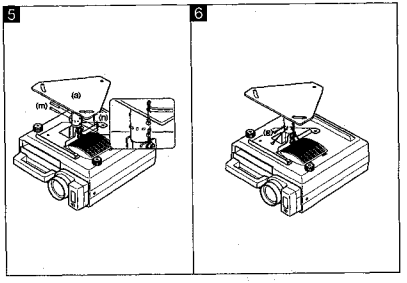
2 Attach adjustment pipe (b) or (c) to projector mount bracket (d) using bolt M8 x 50 (f), washers M8 (i), threaded lock washers M8 (k) and nuts M8 (l).
Adjustable height using the pipe (b) is 150/175/200 mm (6 0/7 7/8 inches).
Adjustable height using the pipe (c) is 250/275/300 mm (9 7/8 /10 7/8 /11 7/8 inches).



3 Attach the adjustment pipe to the projector mount bracket (d) using bolt M8 x 50 (f), toothed lock washers M8 (k), washers M8 (i) and nuts M8 (l). Attach the pipes so that the projector becomes level. You may tilt the projector slightly, but this will make the projected picture trapezoidal.

4 Attach the upper ceiling mount bracket (a) to the ceiling.
Use M 10 bolts, nuts and washers (not supplied).

Attaching to the ceiling



5 Insert the adjustment pipe into the upper ceiling mount bracket (a). Attach the pipe with the 6 mm pins (m) and the snap pins (n).
Pipe (b) can be adjusted to a height of 150/175/200 mm (6"/7" 7/8 inches); pipe (c) can be adjusted to a length of between 250/275/300 mm (9 7/8 /10 7/8 /11 7/8 inches).

6 Secure the ceiling mount bracket (a) and the adjustment pipe.
Use six M4 × 6 bolts (g).
Then, tighten the bolts you attached in step 3 to secure the adjustment pipe.

Installation Examples

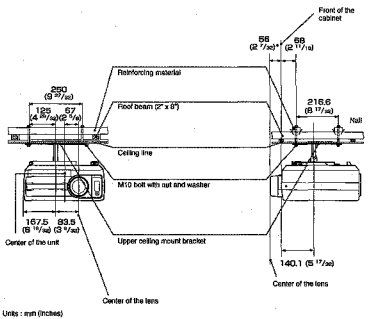
The following illustrations show the projector suspension support attached to with the ceiling. Installation is different depending on the material of ceiling.

Caution

Before installation, check that the maximum ceiling loading is in excess of 80 kg (396 lb 13oz) .

For wooden ceiling

For-one-story house or uppermost floor

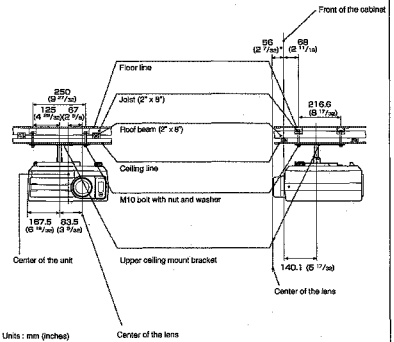


Units : mm (inches)

* When using the standard lens equipped with VPL-V500Q/QM/W400Q/QM.

Installation Examples

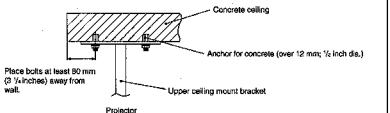
For other floors



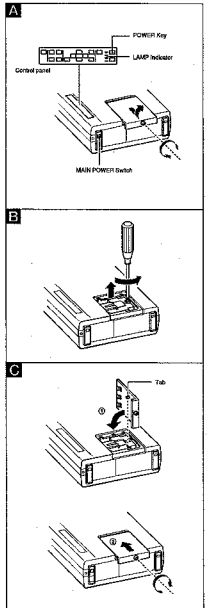
Units : mm (inches)

* When using the standard lens equipped with VPL-V500Q/QM/W400Q/QM.

For concrete ceiling


Concrete ceiling
Anchor for concrete (over 12 mm; ½ inch dia.)
Place bolts at least 80 mm (3 ⅛ inches) away from wall.
Upper ceiling mount bracket
Projector

1-3. PK-PJ500



Before operating the unit, please read this manual thoroughly and retain it for future reference.

The PK-PJ 500 lamp is designed to be used with the VPL-V500Q/QM LCD data projector only. Do not use it for any other projector as doing so may lead to breakdown or fire.

Before replacing the lamp

When the LAMP indicator lights up, never open the lamp cover if the projector is installed on the ceiling.

Replacing the lamp

1 When replacing the lamp immediately after using the projector, press the projector POWER key on the control panel or the remote commander. Wait for about 10 minutes. After the fan stops running, turn off the MAIN POWER switch. Wait for at least an hour for the lamp to cool.
Note
The lamp will still be very hot after turning off the MAIN POWER switch. Wait until the lamp has cooled completely before replacing.

2 Disconnect the power cord. After the lamp has cooled down completely, loosen the screw on the lamp cover (on the rear of the projector) using the supplied screw driver. Slide back the cover about 1 cm (⅜ inch), lift up and remove. (Figure A).

3 Loosen the screw on the lamp and pull the lamp out by the handle. (Figure B).

4 Insert the new lamp and push down securely. Tighten the screw.
Notes
- Be careful not to touch the lamp or the reflector.
- The power will not turn on if the lamp is not secured properly.

5 Close the lamp cover. (Figure C).
①Place the lamp cover, making sure that the tab on the back of the cover does not hit the cabinet.
②Slide the cover back, and tighten the screw.
Note
The POWER will not turn on if the lamp cover is not closed securely.

6 Connect the AC power cord and turn on the MAIN POWER switch. The projector will go into the standby mode.

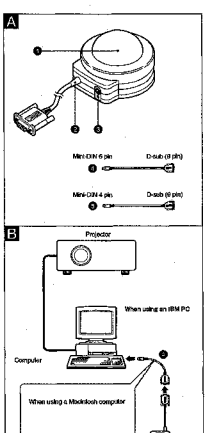
7 Press the following control panel keys in the following order for less than in five seconds each:
LIGHT, ←, →, ENTER.

If the message "Please replase the LAMP." appears on the screen after pressing the POWER key on the control panel or remote commander, repeat Step 7 again.

Disposal of used projector lamp

As the materials used in this lamp are similar to those of a fluorescent lamp, you should dispose of a used projector lamp in the same way as a fluorescent lamp.

1-4. RM-PJ21



The RM-PJ21 Mouse Receiver is designed to be connected to the port (PS/2, ADB, serial) on a computer or keyboard. The mouse receiver allows you to operate the computer's mouse function by remote control using Remote Commander (RM-PJM800 or RM-PJM500) with an air mouse function.

Parts Identification A

❶ Remote control detector
❷ Connecting cable (1 m, 39 3/8 inches)
❸ CONTROL S IN connector (Minijack)
Connects with a projector so that you can operate it with the Remote Commander.
❹ Cable for IBM (PC/AT compatible computer PS/2 type)
Use to connect the serial receiver to an IBM PC/AT compatible computer.
❺ Cable for Macintosh computers
Use to connect the mouse receiver to a Macintosh computer.

Connecting B

If your computer has a serial port, you can directly connect the Mouse Receiver cable to the port.
If the computer is an IBM PC/AT[1] or a Macintosh[2], connect the conversion cable (supplied) to the mouse receiver cable; plug the cable into the port on the computer or keyboard. (See Figure B)

1) IBM PC/AT is a registered trademark of International Business Machines Corporation, U.S.A.
2) Macintosh is a registered trademark of the Apple Computer, Inc.

Remote Commander settings and functions

Set the MENU/MOUSE switch of the Remote Commander to MOUSE. Once set to MOUSE, the MENU, ENTER keys and joy stick function according to the following table. When operating the Remote Commander, point it towards the mouse receiver.

Key	Function	
	Serial, IBM PC/AT compatible	Macintosh
MENU	Left button	Mouse button
ENTER (front)	Right button	Mouse button
ENTER (rear)	Right button	Mouse button
Joy stick	Corresponds with the movements of the mouse	

Notes

- Be sure that there is nothing to obstruct the infrared beam between the Remote Commander and the mouse receiver.
- The CONTROL S IN connector does not supply power. Use the proper power source such as AC adapter to provide proper power to any connected equipment.
- If you connect the mouse receiver to a serial port on the computer, the computer must be set accordingly in the operating system. For details, contact your computer manufacturer.